SOV/24-58-4-3/39

On the Flotation Properties of Lead Minerals Difficult to Flotate, in Relation to Their Structural and Crystal Chemical Peculiarities

collectors must be carried out with strict control of the pH value. "Phosphotene" and "Vetluga" oil (vetluzhskoye maslo), a product of chemical treatment of wood consisting of fatty acids and high-molecular phenols, were found useful as collectors of plumbojarosite, which is not affected by sulphidisation. There are 2 figures, 3 tables and 6 references, 5 of which are Soviet and 1 English.

SUBMITTED: June 20, 1957

Card 3/3

electrokinetic potentials of the surfaces, the stability of the films of reagents on the surfaces and the time taken for the mineral to adhere to the bubble of air under various conditions of alkalinity and with various collectors. This was measured by the electronic device used by Glembotskiy (Ref 5).

Results show that the presence of bonds in parallel directions and the absence of volume configurations of ions create favourable conditions for the introduction into the crystal lattice of flotation reagents. Deterioration in flotation properties corresponds to a marked increase in lattice energy. The surfaces of cerussite, anglesite, wulfenite and pyromorphite have a natural hydrophobic character. The surfaces of the other minerals have not. The efficiency of the action of sodium sulphide and xanthogenate decreases in the following order: cerussite, anglesite, wulfenite, vanadinite, pyromorphite, mimetite, beudantite. Preliminary sulphidisation by application of sodium sulphide and xanthogenate as

SOV/24-58-4-3/39

AUTHORS: Anfimova, Ye.A., Glembotskiy, V.A., Plaksin, I.N. and Shcheveleva, A.S. (Moscow)

TITLE: On the Flotation Properties of Lead Minerals Difficult to Flotate, in Relation to Their Structural and Crystal Chemical Peculiarities (O flotatsionnykh svoystvakh trudnoflotiruyemykh svintsovykh mineralov v svyazi s ikh strukturnymi i kristallokhimicheskimi osobennostyami)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 16 - 22 (USSR)

ABSTRACT: The lead minerals investigated were cerussite, anglesite, wulfenite, vanadinite, pyromorphite, mimetite, beudantite $PbFe_3(AsO_4)(SO_4)$ and plumbojarosite $PbFe_6(SO_4)(OH)_{12}$. These are given in this order in Table 1 and are divided into three groups. Group 1 contains the first three which possess similar crystal lattice energies and easy cleavage. Group 2 contains the next three minerals. These possess greater lattice energies, stronger bonds and very weak cleavage. Group 3 contains beudantite and plumbojarosite, the lattice energies being 9-9.5 times and 16-18 times that of the first group, respectively. The flotation properties were found by measuring the

Card1/3

PLAESIN, I.N.

Research in the field of mineral dressing at the Massachusetts Institute of Technology. Izv.vys. ucheb. zav.; tsvet. met. no.3:155-158 '58. (MIRA 11:11)
(Massachusetts Institute of Technology) (Ore dressing)

MAZUROVA, A.A.; PLAKSIN, I.N.

Leaching in autoclaves under oxygen pressure of gold-containing pyrite-arsenic concentrates. Izv. vys. uchab. zav.; tsvet. met. no.2:100-107 '58. (MIRA 11:8)

1. Moskovskiy institut tsvetnykh metallov i zolota. Kafedra metallurgii blagorodnykh metallov.
(Leaching) (Gold ores)

Employing Ion Exchange for Separating Copper From S... SOV/...

...

ASSOCIATION: Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR (Moscow Institute of ..., AS USSR)

SUBMITTED: November 25, 1957

Card 2/2

SOV/[illegible]

AUTHORS: Plaksin, I. N., Sergeyenkaya, N. A., Pashkov, A. B.

TITLE: Employing Ion Exchange for Separating Copper From Solutions (Primeneniye ionnogo obmena dlya vydeleniya medi iz rastvorov.)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, No. 2, pp. 95-97 (USSR)

ABSTRACT: The possibility of the selective separation of copper from solutions, produced in hydrometallurgical processes, by means of ion exchange is described. The main component accompanying copper is in most cases iron. The cationites C, BC, KU-1, KU-2 and the anionites AN-1, AN-2, EDE-10 and AB-16 are used for the separation of copper from iron. The results obtained showed that the selective sorption from sulfuric acid solution on the anionite AB-16 is the most intense, and that by means of this anionite a separation of copper is possible. The exchange resin was converted to the chloride form. The flow rate of the dropped in solution was 18-20 drops a minute. The results obtained showed that the anionites proved to be the best suited ion exchangers in the separation of copper from iron from

Card 1/2

PLAKSIN, I.N.; SUVOROVSKAYA, N.A.; SHIKHOVA, V.V.; VOSKRESENSKAYA, M.M.

Stability of certain collectors in acid media. Izv. vys. ucheb. zav.; tsvet. met. no.2:23-26 '58. (MIRA 11:8)

1. Moskovskiy institut tsvetnykh metallov i zolota i Moskovskiy institut stali.

(Flotation)

Certain Peculiarities in the Behavior of Selenium and Tellurium (cont.)

and an increase in temperature significantly shifts the equilibrium of these reactions toward the formation of selenides of the noble metals.

B.L.

1. Ores--Processing 2. Ores--Analysis 3. Selenium--Determination
4. Tellurium--Determination

SOV/137-58-9-18787

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 91 (USSR)

AUTHORS: Ignat'yev, O.S., Plaksin, I.N.

TITLE: Certain Peculiarities in the Behavior of Selenium and Tellurium in the Processes of Mineralization and Metallurgical Treatment of Ores (Nekotoryye osobennosti povedeniya selena i tellura v protsessakh mineralizatsii i metallurgicheskoy pererabotki rud)

PERIODICAL: Izv. vys. uchebn. zavedeniy. Tsvetn. metallurgiya, 1958, Nr 1, pp 90-95

ABSTRACT: A method of identifying Se and Te in the products of treatment of sulfide Cu and Cu-Ni ores, and the relationship thereof with the noble metals by thermodynamic analysis and laboratory investigations of the reactions of formation of Ag and Pd selenides from various sulfides and selenides, with phase analysis of the reaction products, is investigated. Note is taken of the special characteristic of Se and Te, consisting of the fact that they accompany noble metals in the processes of formation and metallurgical treatment of sulfide Cu, Cu-Zn and Cu-Ni ores. Ag and Pd are capable of displacing Cu from Cu selenide,

Card 1/2

ANFIMOVA, G.A.; GLEMBOTSKIY, V.A., prof., doktor; PLAKSIN, I.N.; SHCHEVELEVA, A.S.

Stability of securing surface layers of reagents on oxidized minerals during the flotation process with varying pulp basicity. Biul. TSIIN tsvet. met. no.1:10-16 '58. (MIRA 11:4)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Flotation)

PLAKSIN, I. N., KLASSEN, V. I., and VLASOVA, N. S.

"Theoretical Bases of the Action of Reagents in the Flotation of Coal," (Section E).

paper submitted for Third sIntl. Coal Production Congress, Leige, Belgium, 23-28 June 1958.

DAKSIN, I. N., and OLOFINSKIY, N. F.

"New Trends in Research on Separation of Small Coal in an Electrical Field," paper submitted for 3rd Intl. Coal Production Congress, Liege, Belgium, 23-28 June 1958.

PLAKSIN, I. N., KLASSEN, V. I., and AKOPOV, M. G.

"The Effect of Reagents on the Treatment of Small Coal in Hydrocyclones," (Section D).

paper submitted for Third Intl. Coal Production Congress, Leige, Belgium, 23-28 June 1958.

PLAKSIN, I. N.

"USe of Microautoradiography and Radiometry for Investigations in the Theory of Flotation,"

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sept 58.

GO/ksv
11-20-58

Card 8/8

Card 7/8

Metallurgy of Precious Metals 816

Card 4/8

Metallurgy of Precious Metals 816

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PHASE I BOOK EXPLOITATION 816

Plaksin, Igor' Nikolayevich, Corresponding Member, Academy of Sciences, USSR

Metallurgiya blagorodnykh metallov (Metallurgy of Precious Metals) Moscow, Metallurgizdat, 1958. 366 p. 6,000 copies printed.

Reviewers: Kakovskiy, I.A., Doctor, Professor; Khokhlov, V.R., Candidate of Technical Sciences; Skobeyev, I.K., Doctor, Professor; Bessonov, S.V., Doctor of Technical Sciences, Professor; Ed.: Marenkov, Ye. A.; Ed. of Publishing House: El'kind, L.M.; Tech. Ed.: Vaynshteyn, Ye. B.

PURPOSE: This is a textbook for mining and metallurgical institutes and may also be used as a practical guide for mining and metallurgical engineers.

COVERAGE: The book presents the theoretical and practical aspects of the metallurgy and refining of precious metals. Gravity and

Card 1/8

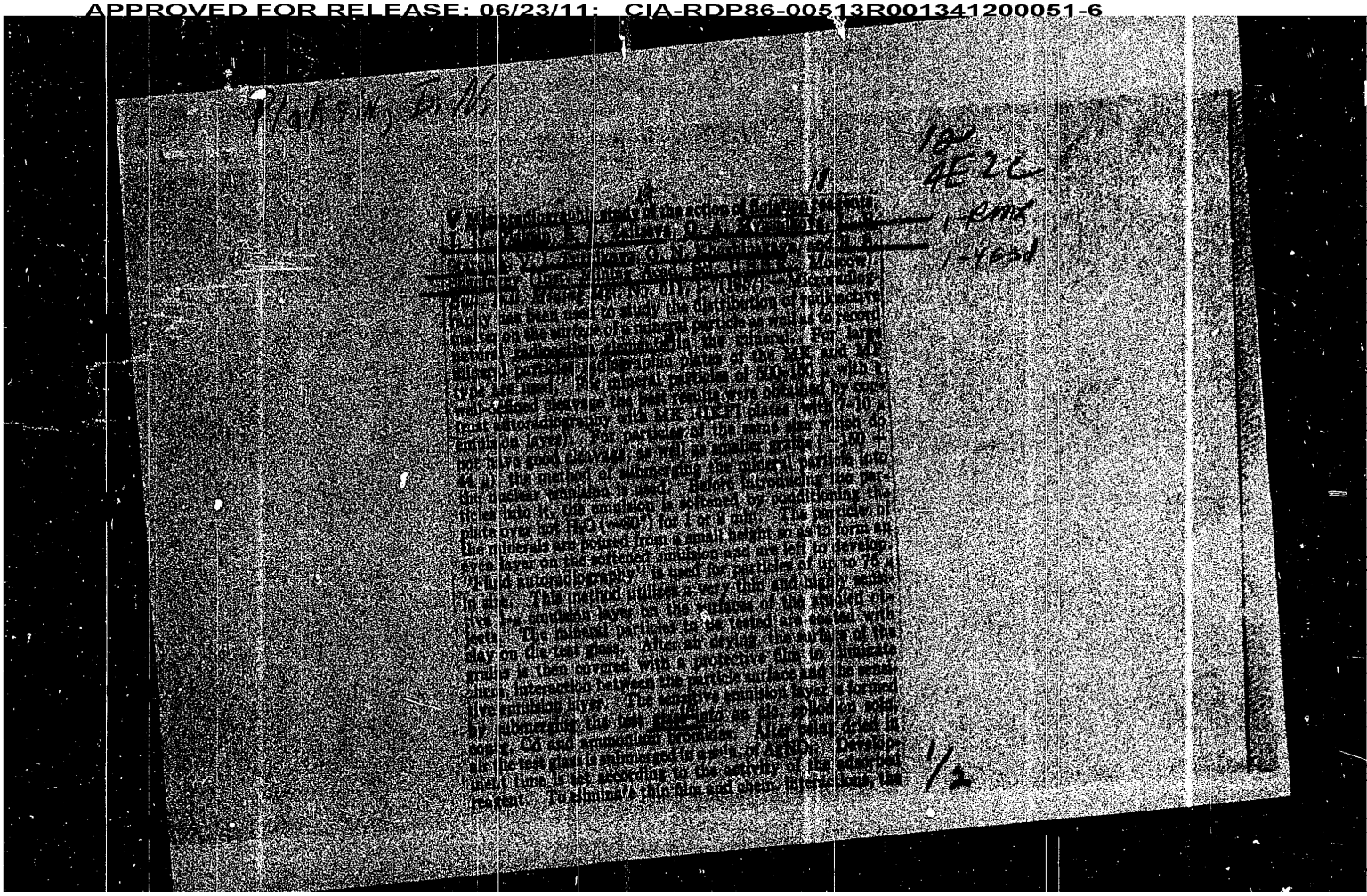
PLAKSIN, I.N.; ZAITSEVA, G.A.

12
4E2c
1 [illegible]
4E3d

collodion soln. temp. and that of the $AgNO_3$ should not be above 1°. Also, to do away with the veiling film enough H_2SO_4 to give pH 2.5 is added to the soln. of the $AgNO_3$. Grains of metallic Ag are formed in the warm soln. of $AgNO_3$ on sensitive centers in the emulsion layer which originate during the passage of β-particles. The development is done [illegible] in a soln. of ferrous sulfate with the addn. of [illegible] and AcOH. Change of AcOH concn. helps to vary the size of Ag grains from 0.2 to 10 μ. When there is great activity in the prepn. it is convenient to reduce the grain size, while in the case of slight activity the study of the mineral surface is best carried out by using big grains of Ag. Radiometric and radiographic studies have also been made on flotation test products by using flotation reagents that contain radioactive isotopes. When the test was terminated the flotation products were filtered and washed in the filter to remove the reagent mechanically entrained between the mineral particles. The flotation products were then dried in air, and the av. sample of the product was subjected to radiometric measurements. The detn. of the activity of the samples was done by mica end-window counters. Comparison has been used as the basis for the study of the activity of the powders. For every set of reagent adsorption tests a standard of the same wt. and chem. content was prepd. contg. all the assigned amts. of radioactive isotope. Flotation studies over a no. of yrs. have shown that the use of added O gives pos. practical results. Radioactive isotopes introduced into the flotation reagents have shown that in a deoxidized medium the collectors are characterized by absence of collecting ability.

G. W. [illegible]

2/2



ethylxanthogenate in presence of potassium bichromate at pH of 1,8 up to 7 show that the bichromate (chromate) quantity adsorbed by the foam product decreases with decreasing pH considerably. This quantity increases considerably from pH 5,5 on and reaches the 13 fold at pH 7,0. The same applies in the case of pyrite flotation, however, to a somewhat smaller extent. In experiments with minimum chromate adsorption both minerals (pyrite and galena) are extracted into the foam product in a maximum quantity, i. e. no depres ion takes place. Hence it follows that the reason for the depression of galena and pyrite by chromates can be found in the formation of only to a very small extent soluble middle or alkaline chromates on their surface. The adsorption of chromium salts prevents the mineral particles from adhering to the air bubbles inspite of the presence of the xanthogenate ions on the surface. The abrupt decrease of the chromide adhesion to sulphides at pH $<6,0$ corresponds to the transition of the bichromate ion into the chromate ion in the liquid phase.

product on the dosing of the potassium bichromate. It appears from the diagram that the minimum flotation extraction, i.e. a depression state of the minerals, corresponds to the maximum value of the chromate adsorption. The strength of the adhesion of the bichromate to galena can be characterized by desorption by means of rinsing with different quantities of destilled water. Figure 3 gives such desorption curves. They show that at most 32-35% of the adsorbed chromate can be desorbed with water. Hence follows a sufficiently stable chromate adhesion to galena. Furthermore the adsorption of potassium bichromate by galena was measured according to the pH of the medium. The results of the direct determination of the adhesion of bichromate to galena at a constant bichromate concentration are given in figure 4. Within the range of the acid solutions this dependence is described satisfactorily by the equation of Freyndlikh. The adsorption remains almost constant in the neutral and in the alkaline range. The results of the flotation experiments of a quartz-galena-mixture by

AUTHORS: Plaksin, I. N., Corresponding Member of the AS USSR, and Myasnikova, G. A. 20-117-5-38/54

TITLE: **Using the Radioactive Isotope Cr^{51} to Study Galena and Pyrite Depression in Selective Flotation**

(Primeneniye radioaktivnogo izotopa Cr^{51} dlya izucheniya depressii galenita i pirita pri selektivnoy flotatsii).

PERIODICAL: Doklady AN SSSR, 1957, Vol. 117, Nr 5, pp. 864-866 (USSR)

ABSTRACT: The authors used for the first time labelled chromium Cr^{51} for the study of the labelled bichromate- and chromate ion. It is known that these ions depress the two mentioned minerals in the flotation. After the study of the chromate adsorption the distribution of the bichromate among the products of the foam flotation was investigated. The experimental results with the adsorption of the solved bichromate with labelled chromium are described in detail by the equation of Freyndlikh (figure 1). However, a transition to other compounds can take place here in the adsorption. Indissoluble salts can be deposited as chromate, sometimes as basic chromate. Figure 2 shows the experimentally found dependences of the adsorption and extraction into the foam

Card 1/4

Note of the Influence of Gases on the Floatability of Some Non-Sulfidic Minerals as Dependent on the Crystal Structure. 20-4-27/51

depend strongly on the oxygen content in the pulpa (pul'pa). The properties discussed here are probably caused by the peculiarities of the crystal structure. In this way the differences in the ability to hydrate of fluorite and baryte may be explained above all. The degree of the increase of the hydrophobia because of the physical adsorption of gases from the solution in general depends on the field strength of the surface field. This dependence also holds inversely; The lesser the field strength, the more the field is screened by the adsorbed molecules. The irreversability of the influence of oxygen on the floatation of baryte is probably connected with a particularly strong binding of a proportion of the oxygen molecules in certain centres of the surface of the baryte. In the case of oxygen a chemical adsorption is added without doubt. The chemically adsorbed oxygen ions or oxygen molecules activate the surface of the adsorbent in their turn.

Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200051-6

PLAKSIN, I. N.

AUTHORS: Bakakin, V. V., Plaksin, I. N., Corresponding Member 20-4-27/51
of the AN SSSR, Chaplygina, Yu. M.

TITLE: Note of the Influence of Gases on the Floatability of Some Non-Sulfidic Minerals as Dependent on the Crystal Structure (Vliyaniye gazov na flotiruyemost' nekotorykh nesul'fidnykh mineralov v zavisimosti ot ikh kristallicheskoy struktury)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 4, pp. 625-628 (USSR)

ABSTRACT: The Study of the influence of gases on the floatability of non-sulfidic minerals made possible the determination of several adsorption and floatation properties of fluorite and baryte, which are caused by the effect of gases. A prolonged treatment with nitrogen has no essential effect on baryte, which first was subjected to a treatment with oxygen. The floatation activity decreases on a oxygen lack. The mineral was prepared and floatated for the experiments in a current of argon and of nitrogen. Nitrogen free from oxygen was employed for the experiments. The experiments showed, that because of the floatation on a normal concentration of oxygen 44% of fluorite pass into the concentrate. Further properties are enumerated. The floatation activity of baryte depends only little on the concentration of oxygen in the solution, if only oxygen was adsorbed previously on the surface. On the contrary, the floatation properties of fluorite

Card 1/2

20-5-46/60

Action of Increased Dosages of Frother on the Flotation of Pyrrholite and Sphalerite.

tation results, by far exceeding those obtained with the usual consumption figures of frothers, were obtained from a joint application of a butyl xanthogenate and increased amounts of frother. This may probably be explained by an additional joint action of frother and collector which favours an increased transition of the mineral into the froth product. The supposition is in agreement with the data of papers by LEJA + SCHULMAN. (2 illustrations, 2 Slavic references).

ASSOCIATION Institute for Mining of the Academy of Sciences of the U.S.S.R. (Institut gornogo dela Akademii nauk SSSR)

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SUBMITTED 17.9.1956
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Card 3/3

20-5-46/60

AUTHOR: PLAKSIN, I.N., corresponding member of the Academy, KHAZHINSKAYA, G.N.

TITLE: Action of Increased Dosages of Frother on the Flotation of Pyrrholite and Sphalerite.
(Deystviye povyshennykh dozirovok penoobrazovatelya na flotatsiyu pirrotina i sfalerita. Russian).

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 5, pp 1084-1086 (U.S.S.R.)

ABSTRACT: Sphalerite and pyrrholite belong to the most difficult floatable sulfides. According to published data sphalerite cannot be floated by lower sulfhydryl collectors. It can, however, be floated by xanthogenate with C_8 and more. In acid pulps zinc blende can be floated by fatty acids. At higher pH-values the extraction of mineral and the froth product decrease. Rise of temperature improves the floatability of the mineral. Data on the floatation of pyrrholite are almost entirely lacking in publications. It is known that iron sulfides can be easily floated by fatty acid, especially in acid pulps, further by higher xanthogenates in acid, neutral and even in weakly alkaline pulps. The application of lower xanthogenates and dithiophosphates yields little satisfactory results, which necessitate the use of an activator. The flotation of pyrrholite is interesting for metallurgy, especially in the case that nickel sulfide is associated with it, since a separate flotation of nickel and iron sulfides (pyrrholite) does not yield satisfactory results; nickel and iron apparently form a solid solution. Experiments

Card 1/3

~~Plaksin, I. N.~~ PLAKSIN, I. N.

Measurement of specific surface of mineral powders. I. N. Plaksin, A. M. Okolovich, and L. P. Zaralskaya. *Tsvetnye Metally* 30, No. 8, 37-43(1957).—Specific surface of mineral powders of flotation size, particularly of sulfides, was detd. by a method developed by Deryagin and coworkers (*C.A.* 41, 2023i; 43, 18f; 47, 944g; 50, 1553f, 10432e, 15173d). This permitted the detn. of total external surface of particles and of internal surface of pores and cracks, without influence by the chem. nature of the substance. E. M. Elkin

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1/1

PLAKSIN, I.N.

Theoretical and technological problems of flotation discussed at the International Congress of Surface Phenomena (surface activity) in London. TSvet. met. 30 no.7:80-83 Jl '57. (MLRA 10:9)

1. Chlen-korrespondent AN SSSR.
(Flotation) (London--Chemistry, Physical and theoretical)

Employment of Radioactive Isotopes (cont.)

minerals. Ag is absorbed most strongly by stibnite, chalcopyrite, and pyrrhotite.

L.P.

1. Metals--Absorption 2. Metals--Absorptive properties 3. Cyanide solutions --Chemical reactions 4. Metal sulfides--Chemical reactions 5. Radioisotopes --Applications

Card 2/2

SOV/137-58-8-16645

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 57 (USSR)

AUTHORS: Kuzmichev, G.V., Plaksin, I.N.

TITLE: Employment of Radioactive Isotopes to Study Certain Questions in Hydrometallurgy (Primeneniye metoda radioaktivnykh izotopov pri izuchenii nekotorykh voprosov gidrometallurgii)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota, 1957, Nr 27, pp 70-88

ABSTRACT: Radioactive isotopes are used in the study of the interaction between Sb, Ag, and CaO in a cyanide solution on the one hand with sulfide minerals on the other. It is established that CaO, Sb, and a complex Ag cyanide react in the cyanidation process with decomposition products and components of the sulfide minerals to form compounds that fix themselves to the surfaces of grains of the minerals. A study is made of the interaction kinetics under various process conditions. It is observed that the absorptive capacity of minerals for Ca is controlled essentially by the rate at which the S of the given mineral passes into chemical compounds. Sb is absorbed actively by galena and sphalerite and to a lesser degree by other

Card 1/2

PLAKSIN I.N.

Plaksin, I.N.

137-1958-3-4524

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 7 (USSR)

AUTHORS: Bessonov, S. V., Plaksin, I. N.

TITLE: On the Effect of the Alkalinity of Pulp on the Oxidation of Sulfides and Their Flotation (O vliyanii shchelochnosti pul'py na okisleniye sul'fidov i na ikh flotiruyemost')

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn met. i z-lota i VNITO tsvetn. metallurgii, 1957, Nr 26, pp 33-34

ABSTRACT: Available experimental materials, also observations made under industrial conditions, justify the conclusion that a direct relation exists between the alkalinity of the pulp and the oxidation processes of sulfides during flotation. The greater the alkalinity of the pulp, at a given O_2 concentration, the more intense the oxidation in the liquid phase of the pulp. Consequently, by controlling the pH of the medium, the reaction of minerals with the flotation agents may be altered. Thus the problem of the amount and of the point at which alkali is supplied during the process acquires great practical importance.

A. Sh.

Card 1/1

Employment of Radioactive Isotopes (cont.)

the strength of the collector layer increases with increasing O_2 content in the solution.

A. Sh.

Employment of Radioactive Isotopes (cont.)

layer increases continuously on the surface of Ag, Cu, and on the surface of an alloy consisting of 70 percent Au, 20 percent Ag, and 10 percent Cu. An investigation of the preliminary action of gases, shows that Au, having a lesser affinity for O_2, increases its adsorptive capacity throughout the entire time of its exposure to the action of O_2, whereas alloys of Au with Ag, and Au with Ag and Cu, react identically for a period of 20-30 min only; in the case of Cu and Ag the adsorptive capacity increases initially, but decreases rapidly thereafter. Such behavior of Ag and Cu may be explained by the peculiarities of the oxide films which form on their surface owing to the action of O_2. N_2 and H_2 do not affect the adsorptive capacity of Au, Ag, Cu, and their alloys. Experimental results have demonstrated that a preliminary reduction of the surface creates more favorable conditions for the subsequent treatment with O_2. An increase in the O_2 content in the solution produces a further density increase in the xanthogenate layer on metals and alloys already possessing such a layer. The effect of the length of exposure to water on the density of the adsorptive layer was studied in order to determine the surface strength of the xanthogenate layer. It is shown that

Plaksin, I. N.

137-1958-3-4522

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 3, p 7 (USSR)

AUTHORS: Plaksin, I. N., Zaytseva, S. P.

TITLE: Employment of Radioactive Isotopes to Study the Influence of Gases on the Density of a Layer of Ethylxanthogenate of Potassium on the Surface of Gold, Silver, and Copper, and their Alloys (Izucheniye vliyaniya gazov na plotnost' sloya etilovogo ksantogenata kaliya na poverkhnosti zolota, serebra, medi i ikh splavov s primeneniyem radioaktivnykh izotopov)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota i VNITO tsvetn. metallurgii, 1957, Nr 26, pp 21-32

ABSTRACT: The study of the action of gases followed two courses: a) simultaneous action of a gas and the collector; b) preliminary action of a gas for varying periods of time, followed by immersion of the laminae into a solution of xanthogenate. It is established that the density of the adsorption layer on the surface of Au increases when the O_2 in the solution is increased from 9 mg/l to 45 mg/l, and only within a certain range of time during which contact with the xanthogenate is maintained; after 90 min of contact, increases in density are no longer observed, while the density of the collector

Card 1/3

PLAKSIN, I.N.; ZAYTSEVA, S.P.; STARCHIK, L.P.; TRET'YAKOV, O.V.; TYURNIKOVA, V.I.; SHAFEYEV, R.Sh.

Studying the reaction of reagents and minerals in flotation by the microautoradiographic method. Zav. lab. 23 no.3:313-316 '57. (MIRA 10:6)

1. Institut gornogo dela Akademii nauk SSSR.
(Radiography) (Flotation)

The Autoradiographic Method and the Investigation of the Distribution of Flotation Reagents on the Surface of Small Particles of Sulfidic Minerals. PA - 3093

the analysis and delivery of the photographs since the great sensitivity reduces the time of exposure from 24 hours to 30 minutes. The method also eliminates the possibility of a chemical interaction of the surface of the mineral, the adsorbing flotation reagent and the photographic solutions. By the use of completely thin emulsion layers (of the dimension order of 1 μ) it is possible to obtain autoradiograms which correspond pretty exactly to the real distribution of the flotation reagent.
(3 illustrations and 3 citations from Slav publications)

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 30.10.1956
AVAILABLE: Library of Congress

Card 2/2

AUTHOR: PLAKSIN,I.N., STARCHIK,L.P., TYURNIKOVA,V.I. PA - 3093

TITLE: The Autoradiographic Method and the Investigation of the Distribution of Flotation Reagents on the Surface of Small Particles of Sulfidic Minerals. (Metodika avtoradiografii pri issledovanii raspredeleniya flotatsionnykh reagentov na poverkhnosti chastits sul'fidnykh mineralov, Russian)

PERIODICAL: Izvestiia Akad. Nauk SSSR, 1957, Vol 21, Nr 3, pp 187 - 189 (U.S.S.R.)

Received: 6 / 1957 Reviewed: 7 / 1957

ABSTRACT: The wet autoradiographic method was employed in the investigation of the distribution of flotation reagents on the granules of copper and lead sulphides in the order of flotation with different but pronounced affinitive capacities. The best results were obtained by using platelets of organic glass (a 2% solution of the same in dichlorethane) and quartz (obtained by means of the sublimation of the quartz in a 10^{-4} mm Hg vacuum inside of 4 minutes). The experiments were carried out on galena from Khapcheranga (southeast of Baikal Sea on the Mongolian border) and on pyrite from Nizhniy Tagil (central Ural). The granularity came to -74 + 43 μ. The method used for the fixing of the reagent distribution on the surface of the minerals is characterized by great precision and especially because of the use of highly sensitive emulsion and great solubility power. The wet autoradiographic method substantially accelerates

Card 1/2

PLAKSIN, I.N.; OKOLOVICH, A.M.; NAZAROVA, G.N., kand.tekhn.nauk

Using the DS reagent (Soviet detergent) for the flotation of complex ores. Biul.TSIIN tsvet.met. no.18:11-17 '57. (MIRA 11:5)

1. Chlen-korrespondent AN SSSR (for Plaksin).
(Flotation) (Sulfonated compounds)

Influence of oxygen on the interaction of sulphide minerals with xanthogenate in presence of sodium sulphide.

with results of technological experience relating to suppression of the galenite in the case of excess Na_2S; it can be seen from the graph that suppression of the flotation in the given case is due to reduced adhesion of the collecting agent on the mineral. Analogous experiments were made using predetermined doses of oxygen. The experiments and the results are briefly described and entered in the Table. These show that the same relations govern the effect of oxygen in presence of Na_2S as were established earlier by one of the authors and his team (Refs.9 and 10) for the interaction of sulphide minerals with the collector reagent.
There are 2 figures, 1 table and 10 references, all of which are Slavic.

SUBMITTED: July 18, 1957.

AVAILABLE: Library of Congress.

Card 2/2

PLAKSIN, I. N.

24-12-18/24

AUTHORS: Nay-Lyan', Dun; Plaksin, I.N. and Tyurnikova, V.I. (Moscow).

TITLE: Influence of oxygen on the interaction of sulphide minerals with xanthogenate in presence of sodium sulphide. (Vliyaniye kisloroda na vzaimodeystviye sul'fidnykh mineralov s ksantogenatom v prisutstvii sernistogo natriya).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.12, pp.80-82 (USSR)

ABSTRACT: One of the least studied problems is the influence of dissolved oxygen on the operation of sodium sulphide during flotation. However, no direct results of measurements were published relating to the influence of dissolved oxygen on the interaction of collecting agents with minerals in presence of Na_2S, using galenite of a grain size of 74 and 43 μ. In earlier work (Ref.6) two of the authors of this paper established that change in the concentration of Na_2S influences the adhesion of xanthogenate on the galenite, as shown in the graph, Fig.1, p.81. The existence of a maximum was observed which is explained by certain initial oxidation of the galenite under consideration and is in good agreement

Card 1/2

PLAKSIN I. N.

AUTHORS: Vlasova, N. S. and Plaksin, I. N. (Moscow) 24-11-6/31

TITLE: On applying the "Soviet detergent" for flotation of hard coal fines. (O primenenii "detergenta sovetskogo" pri flotatsii kamennougol'noy melochi).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.11, pp. 52-56 (USSR)

ABSTRACT: A special preparation, the "Soviet detergent" was produced under the leadership of Professor M.A. Geyman in the Oil Institute of the Ac.Sc. U.S.S.R. (Institut Nefti Akademii Nauk SSSR) on the basis of sulphonation aromatics. The obtained product has a good solubility in water, possesses a neutral reaction, remains stable in storage and is not poisonous. The possibility of using this reagent for flotation of coal fines was investigated on the following three types of coal: a coal with an ash content of 33.5% with poor beneficiation properties; coal fines representing a mixture of coal from various deposits containing 22.3% ash and the coal mud of a beneficiation plant with an ash content of 22.5%. The results are entered in Tables 1-3 and these allow the following conclusions: for coals with poor beneficiation properties it is advisable to apply the detergent mixed

Card 1/2

PLAKSIN, I. N.

24-10-24/26

AUTHORS: Glembotskiy, V.A. Kolchemanova, A. Ye., Plaksin, I. N. and Rozenberg, L. D. (Moscow)

TITLE: On the possibility of applying ultrasonics for liberating mineral particles from the adsorbed reagent coatings during flotation beneficiation of minerals. (O vozmozhnosti primeneniya ul'trazvuka dlya osvobozhdeniya chastits mineralov ot adsorbtsionnykh pokrytiy reagentov pri flotatsionnom obogashchenii poleznykh iskopayemykh)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.10, pp. 111-112. (USSR)

ABSTRACT: The authors investigated the effects of ultrasonics on a number of sulphide minerals (Ga, chalcopyrite, sphalerite, pyrite) of various Soviet origins. The crushed sulphides were subjected to flotation using xanthogenate and a foam forming agent in quantities ensuring complete removal of the minerals into the foam product which, after filtration, was transferred into a vessel and subjected to the effect of ultrasonics generated by means of a magnetostriction radiator. After irradiation with ultrasonics, the mineral was transferred into the flotation machine and subjected to flotation using a foam forming agent. Parallel tests

Card 1/2

Influence of oxygen on the flotation behaviour of fluorite and barite.

conclusions are arrived at: change of the flotation behaviour of some non-sulphide minerals as a result of the effect of dissolved gases does not appear to comply with a definite law and the character may differ for various mineral surfaces; study of the flotation behaviour of fluorite and barite in various gaseous media indicates that the change of the oxygen concentration in the pulp within wide limits, under atmospheric pressure is considerably more effective for fluorite than it is for barite; a reversible change of the flotation behaviour of the mineral surfaces of fluorite was detected as a result of the successive effect of oxygen-nitrogen-oxygen in the pulp with a constant concentration of the accumulation agent and, in contrast to this, the initial hydrophobisation of the barite surface does not change appreciably and proves sufficiently stable in the case of further action of gases on it; a possibility was established of flotation of fluorite in aqueous solutions with very low contents of the dissolved oxygen under conditions of collectorless flotation, thereby activation

Card 2/3 of the barite surface with oxygen is possible under these

PLAKSIN I. N.

24-10-22/26

AUTHORS: Plaksin, I. N. and Chaplygina, Ye. M. (Moscow)

TITLE: Influence of oxygen on the flotation behaviour of fluorite and barite. (Vliyaniye kisloroda na flotiruyemost' flyuorita i barita)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.10, pp.107-109 (USSR)

ABSTRACT: In earlier work an intensification of the flotation of fluorite, quartz, calcite and phosphate was observed in cases in which the mineral was treated with a quantity of oxygen which was optimum in the given case. Change of the density and of the bond strength of the collector at the surface of the minerals as a function of the gaseous medium resulted in a reversible change of the flotation behaviour of non-sulphide minerals (Refs.1 and 2). The experiments described in this paper relate to further work concerning the ability of the mineral surface to adsorb gases and from the non-sulphide group of minerals the inert mineral barite was chosen. The subjects of the investigation were fluorite of Kalanguy origin and barite from the Bakal deposits, the chemical compositions of which are given in a Table, p.107. The results are plotted in the graphs, Figs.1-3 and the following

Card 1/3

A Comparative Analysis of the Procedures Employed (cont.)

higher cyanide content. The selection process at that plant proceeds at a higher concentration of hydroxyl ion (with a pH greater than 10) without addition of alkaline reagents for the regulation of flotation; the introduction of soda merely impairs the separation of minerals. At the Berezovskaya plant 100-150 g/t of soda are introduced for this process while the pH remains within the range of 9

A Sh

1. Copper ores--Flotation 2. Zinc ores--Flotation 3. Lead ores--Flotation
4. Ores--Processing

Card 2/2

137-58-5-8753

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 4 (USSR)

AUTHORS: Plaksin, I. N., Okolovich, A. M., Figurkova, L. I., Yekhlakova, S. A.

TITLE: A Comparative Analysis of the Procedures Employed for the Separation of Copper-lead Concentrate at the Berezovskaya and Zolotushinskaya Plant (Sravnitel'nyy analiz usloviy raboty tsiklov razdeleniya medno-svintsovogo kontsentrata na Berezovskoy and Zolotushinskoy fabrikakh)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 10, pp 13-19

ABSTRACT: A presentation of results of the sampling of selective flotation of Cu-Zn (Cu-Pb?) concentrates at Zolotushinskaya and Berezovskaya milling plants. A comparison of the data obtained revealed the following facts. According to all criteria the progress of flotation processes at the Berezovskaya plant is more stable. All operations of selective flotation at the Berezovskaya plant are carried out with considerably thicker pulp and the content of the solid constituents is kept constant. The processes at the two plants also differ greatly with regard to the amounts of depressant employed. The Zolotushinskaya plant operates with a

Card 1/2

PLAKSIN, I. N.

24-9-13/33

AUTHORS: Bakakin, V. V., Plaksin, I. N. and Chaplygina, Ye. M.

TITLE: On the effect of gases on the flotation properties of fluorite and barite. (O vozdeystvii gazov na flotiruyemost' flyuorita i barita).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.9, pp.96-100 (USSR)

ABSTRACT: In earlier work of the authors (Ref.1), it was found that barite maintains in a stable manner the initial flotation ability in the process of long duration treatment of its surface by nitrogen after preliminarily treating the surface with oxygen. In contrast to this, fluorite is capable of changing the flotation properties of the surface by reducing the flotation activity in the case of inadequate oxygen in the pulp and reaching a flotation effect which is the higher the higher the concentration of the dissolved oxygen in the liquid phase; correspondingly, the quantity of oxygen adsorbed by the fluorite will change. After removing the adsorbed oxygen from the surface of the fluorite by appropriate treatment of the mineral and long duration blowing of nitrogen through the pulp, the fluorite loses to a considerable extent its flotation ability and the collector sticks to the mineral. In this paper

Card 1/2

136-8-8/21

Contribution to Methods of Measuring the Specific Surface of Mineral Powders.

filtration of air at atmospheric pressure and at reduced pressure are compared (Table 6). There are 2 figures, 6 tables and 21 references, all Slavic.

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Card 2/2

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200051-6

Plaksin, I.N.

136-8-8/21

AUTHORS: Plaksin, I.N., Okolovich, A.M. and Zarayskaya, L.P.

TITLE: Contribution to Methods of Measuring the Specific Surface of Mineral Powders (K metodike izmereniya udel'noy poverkhnosti poroshkov mineralov)

PERIODICAL: Tsvetnye Metally, 1957, Nr 8, pp.37-43 (USSR)

ABSTRACT: After reviewing proposed methods of measuring the specific surface of mineral powders the authors describe their own experiments with a modified form of an apparatus proposed by B.V.Deryagin (Ref.11) based on air pressure-drop measurements. The modifications introduced had the object of creating Knudsen conditions (high vacuum and low air inflow rates) and they are listed and discussed. A selection of mineral (mainly sulphide) powders and sizes were studied and results are tabulated, (Tables 1-5). The relation between specific surface and porosity is shown graphically. Specific surface values for quartz and for galenite found by geometrical calculations from mean particle size and from microscopic determinations of grain sizes and numbers, by

Card 1/2

136-7-16/22

AUTHOR: Plaksin, I.N. (Corresponding Member of the Ac.Sc. USSR).

TITLE: Problems on the theory and technology of flotation at the Second International Congress on Surface Phenomena (Surface Activity) in London. (Voprosy teorii i tekhnologii flotatsii na vtorom mezhdunarodnom kongresse poverkhnostnykh yavleniy (poverkhnostnoy aktivnosti) v Londone).

PERIODICAL: "Tsvetnyye Metally" 1957, No.7, pp.80-83 (USSR).

ABSTRACT: An outline is given of proceedings at the Congress held in London, 8-12 April, 1957. Five Soviet scientists attended (B. V. Deryagin, A.V. Kiselev, I.N. Plaksin, P.S. Prokhorov and A.A. Trapeznikov) and papers by four (S.I.Yelovich, I.A. Kakovskiy, P.A.Rebinder and A.N. Frumkin) were presented.

1/1

AVAILABLE: Library of Congress

PLAKSIN, I.N.; OKOLOVICH, A.M.; SUVORODSKAYA, N.A.; SHIKHOVA, V.V.

Xanthogenate behavior in aqueous solutions. Trudy Inst. gor. dela 4:234-240 '57. (MLRA 10:6)

1. Chlen-korrespondent Akademii nauk SSSR (for Plaksin).
(Xanthic acids)

PLAKSIN, I.N.; OLOFINSKIY, N.F.

Electric separation of coal fines. Trudy Inst. gor. dela 4:220-232 '57. (MLRA 10:6)

1. Chlen-korrespondent Akademii nauk SSSR (for Plaksin).
(Coal preparation)

PLAKSIN, I.N.

General summary of investigations on coal flotation and prospects for its scientific and technical development. Trudy Inst. gor. dela 4:209-219 '57. (MLRA 10:6)

1. Chlen-korrespondent Akademii nauk SSSR.
(Flotation) (Coal preparation)

Application of autoradiography in studying the distribution of reagents between the particles of minerals in the flotation pulp. (Cont.) 24-4-29/34

most of the xanthogenate, $CuFeS_2$ absorbed less and SiO_2 absorbed almost none. This non-uniform distribution can also be seen from Fig.5 which shows particles of galenite and quartz treated with a solution of ethyl xanthogenate, the dose being 50 g/t. Determination of the distribution of the reagent in the pulp by means of micro-autoradiography can yield useful additional information in investigating the beneficiation properties of ores. There are 5 figures, 2 American, 2 Russian references. (See also "Auto-radiography technique in investigating the distribution of flotation reagents at the surface of particles of sulphide minerals" by I. N. Plaksin, L. P. Starchik and V. I. Tyurikova, same journal, No.3, 1957, pp.187-189).

SUBMITTED: April 24, 1956.

AVAILABLE:

Card 2/2

PLAKSIN, I.N.

AUTHORS: Zaitseva, S.P., Plaksin, I.N. and Shafeyev, R.Sh. (Moscow).

TITLE: Application of autoradiography in studying the distribution of reagents between the particles of minerals in the flotation pulp. (Primeneniye avtoradiografii dlya izucheniya raspredeleniye reagentov mezhdu chastitsami mineralov vo flotatsionnoy pul'pe). 24-4-29/34

PERIODICAL: "Izv. Ak. Nauk, Otd. Tekh. Nauk" (Bulletin of the Ac. Sc., Technical Sciences Section), 1957, No.4, pp.164-168 (USSR).

ABSTRACT: The aim of the investigations was to elucidate the dependence of the yield of grains of reduced silver on the content of a radio-active reagent at the surface of a particle of flotation size. First the authors produced their own emulsions in their laboratories but later they used a standard, Soviet produced, emulsion intended for recording electron radiation. Fig.1 shows a galenite particle at 250 times magnification, treated with a solution of ethyl xanthogenate (containing S^{35}), the reagent dose was 10 g/t. Fig. 2 - same for a reagent dose of 50 g/t. Fig.3 shows five galenite particles treated with a solution of radio-active ethyl xanthogenate with a reagent of 50 g/t. These particles were subjected to a photometric analysis by comparing the light density transmitted through the mass of the particles; the results are given. Fig.4 shows pulp consisting of PbS, $CuFeS_2$ and SiO_2, galenite absorbed

Card 1/2

PLAKSIN, I. N.

18 4E2c-1

Autoradiographic methods in the investigation of flotation reagents distribution on the surface of sulfide mineral particles. I. N. Plaksin, L. P. Starchik, and V. I. Tyurnikova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1957, No. 8, 117-9.—The different radiographic methods in use are discussed, and the Gomberg method, involving the formation of a 1-μ thick layer of highly sensitive emulsion upon the powd. sample was preferred because of its high sensitivity and resolving power. It offers, moreover, means for the observation of the surface structure of the minerals, higher speed (the exposure time being reduced from several days to 30 min.), the chem. noninteraction of the mineral surface and of the adsorbed flotation materials upon the photographic emulsion. W. M. Sternberg

[illegible]

Pyrrhotite flotation. I. N. Plaksin and G. N. Chuzhinskaya. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1957, No. 2, 91-7.—Some results are presented on the flotation of Ni-contg. pyrrhotite with butyl(occasionally ethyl)xanthate as collector and a Minsk oil (a pine oil) or a "special Soviet Detergent" (D.S.) as foaming agent. In some tests, ethylxanthate tagged with S^{35} was used. The purpose of the investigation was to find out the effect of Cu activators, reducing substances, and the changes in the pH upon the pyrrhotite and the xanthate adsorption upon the mineral. The addn. of 100-2000 g. of $CuSO_4$/ton increased the mineral flotation, which remained, however, very low (around 37%). $FeSO_4$ had practically no effect upon flotation, which was somewhat improved by adding Na_2CO_3 to pH 10.05, and with a low foaming-agent concn. A short preliminary aeration of the pulp and stirring improved the floatability of the mineral but lowered the collector adsorption. Pine oil and D.S. have some collecting properties for the mineral. The combined action of xanthate and increased amts. of pine oil (or D.S.) improved the yield considerably (from 85 to 98% in 2 samples of the mineral). A preliminary aeration of the pulp contg. higher proportion of D.S. also improved the yield, but in this case the natural pH of the soln. (8.9) was preferable to the higher pH obtained by Na_2CO_3 addn. The xanthate adsorption is reduced at higher foaming-agent concn.

W. M. Sternberg

SKOCHINSKIY , A.A., akademik, red.; TERPIGOREV, A.M., akademik; SHEVYAKOV, L.D., akademik, red.; MEL'NIKOV, N.V., red.; AGOSHKOV, M.I., red.; SPIVAKOVSKIY, A.O., red.; PLAKSIN, I.N., red.; SUDOPLATOV, A.P., doktor tekhn.nauk, red.; BARON, L.I., doktor tekhn.nauk, red.; PROTOD'YAKONOV, M.M., doktor tekhn.nauk, red.; FAYERMAN, Ye.M., doktor tekhn.nauk, red.; MIKHEYEV, G.F., red.; CHETYRKIN, M.I., red.; IGNAT'YEVA, L.I., red.; BEKKER, O.G., tekhn.red.; ALADOVA, Ye.I., tekhn.red.

[Soviet mine engineering, 1917-1957] Sovetskaia gornaia nauka, 1917-1957. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po ugol'noi promyshlennosi "Ugletekhizdat," 1957. 640 p. (MIRA 11:1)

1. Akademiya nauk SSSR, Institut gornovo dela. 2. Chlen-korrespondent AN SSSR (for Mel'nikov, Agoshkov, Spivakovskiy, Plaksin).
(Mining engineering)

PLAKSIN, I. N.

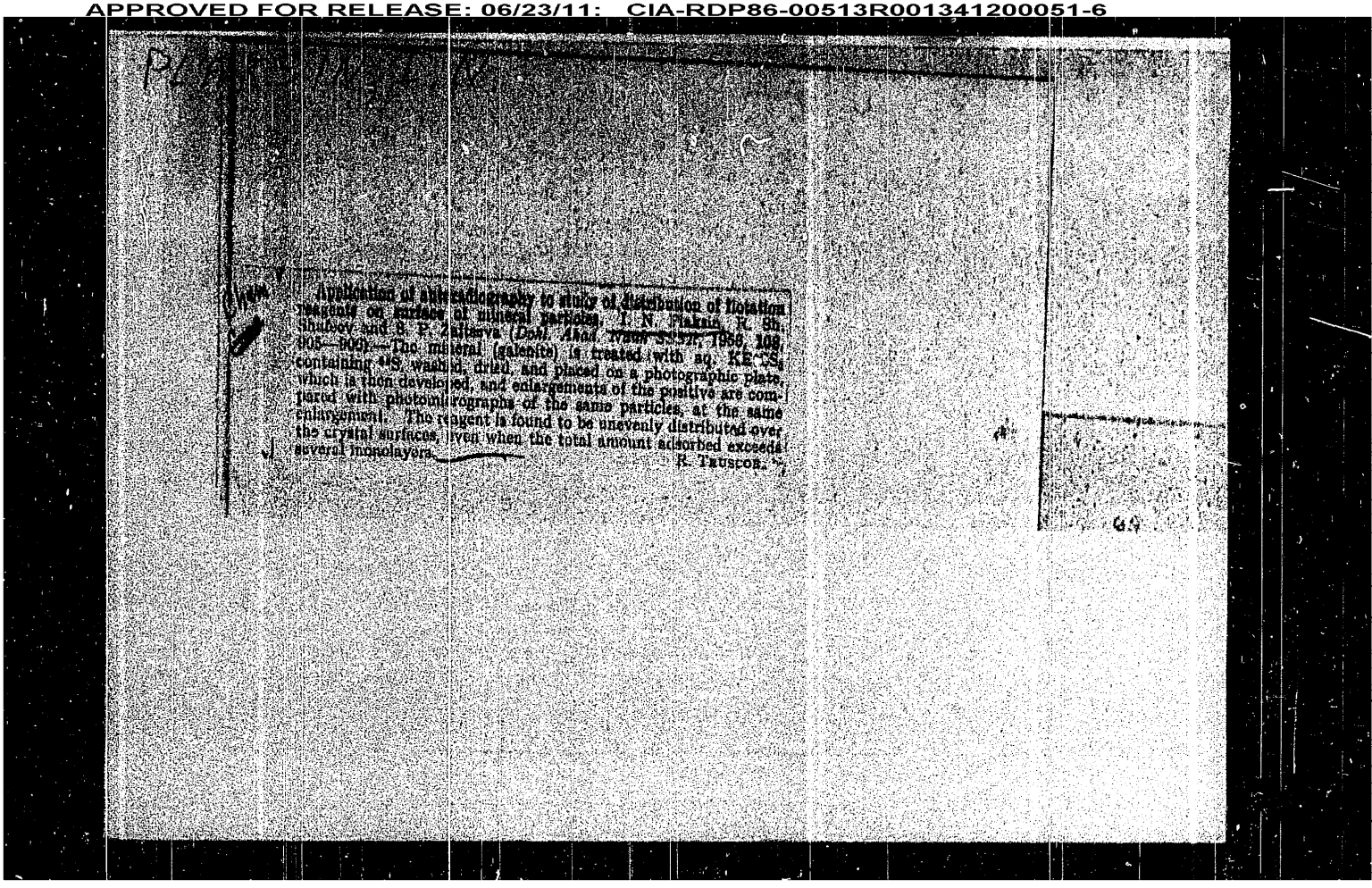
"Application of Microautoradiography to Study of Reagents and Minerals in Flotation,"

~~with~~

with BESSONOV, S. V., "Role of Gas in Flotation Processes."

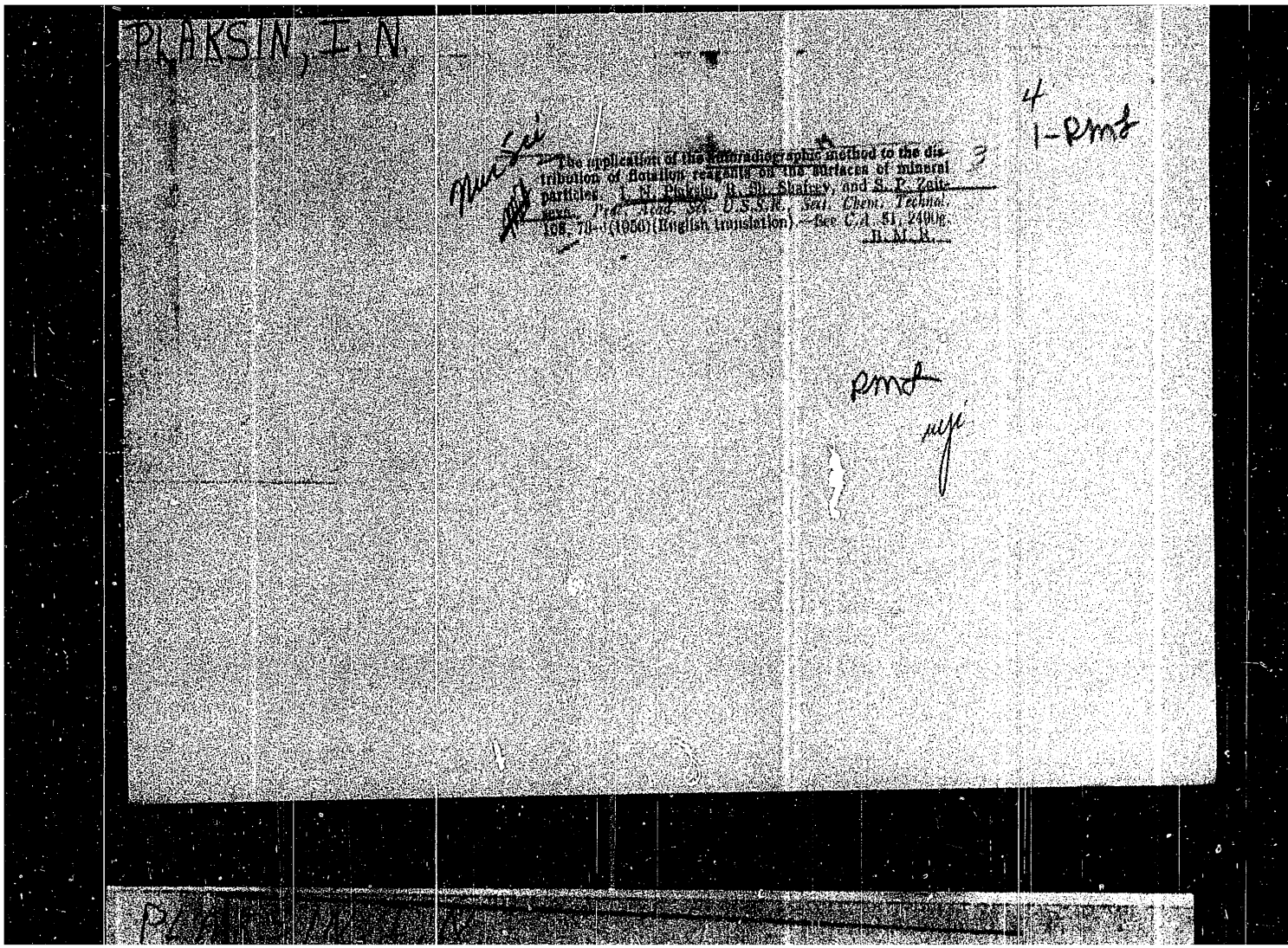
papers delivered at the 2nd Intl. Cong. on Surface Activity, London, 19-23 Apr 1957.

Angewandte Chemie, No. 14, 1957.



Application of autoradiography to study of distribution of flotation reagents on surface of mineral particles. I. N. Plaksin, R. Sh. Shafeev and S. F. Zelenova (*Doklady Akad. Nauk S.S.S.R.*, 1956, 109, 805—808).—The mineral (galenite) is treated with aq. K_2S_x containing ^{35}S, washed, dried, and placed on a photographic plate, which is then developed, and enlargements of the positive are compared with photomicrographs of the same particles, at the same enlargement. The reagent is found to be unevenly distributed over the crystal surfaces, even when the total amount adsorbed exceeds several monolayers.

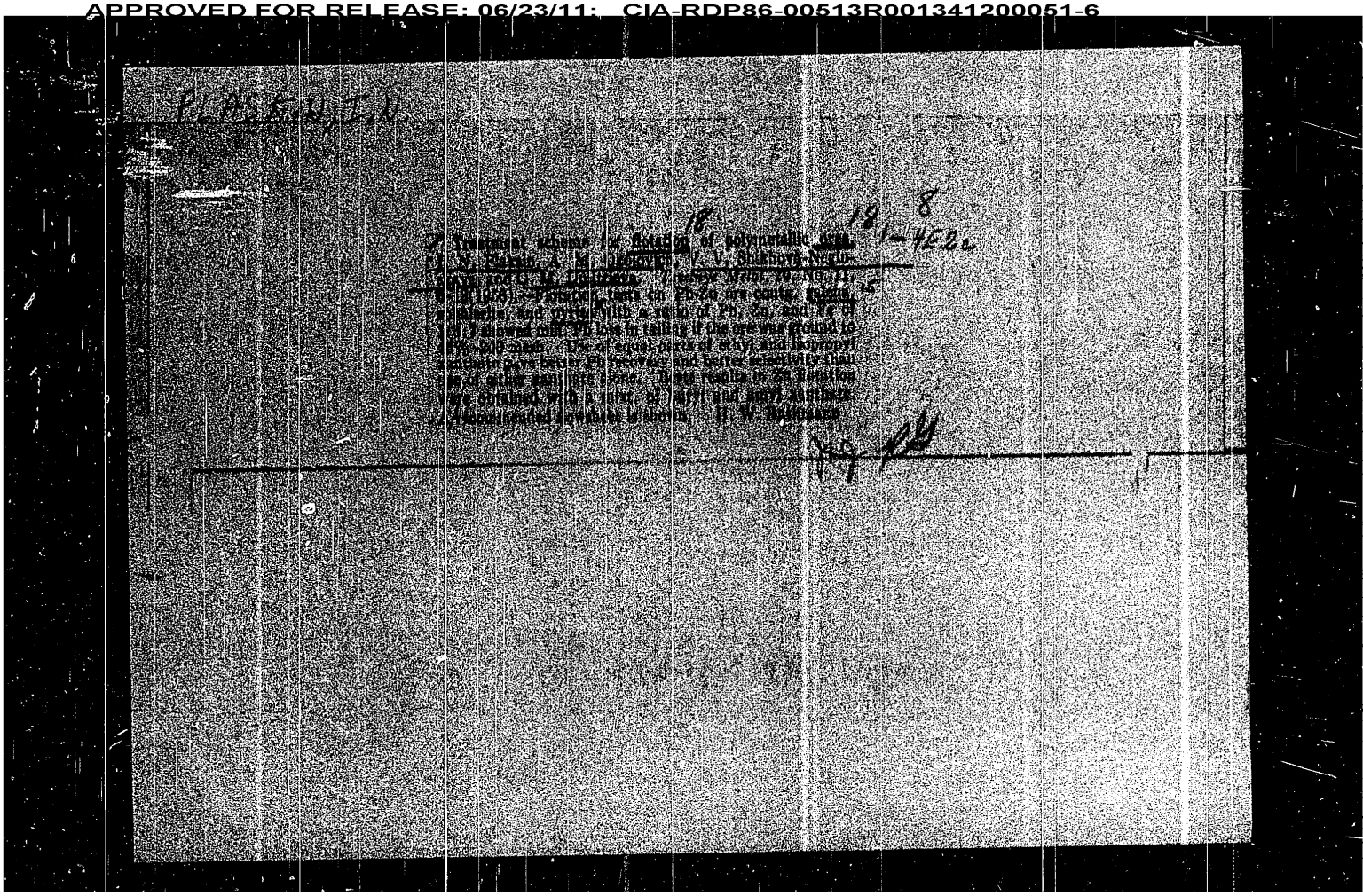
R. Tausson.



PLAKSIN, I.N.

Enrichment of minerals. Priroda 45 no.6:3-12 Je '56. (MLRA 9:8)

1. Chlen-korrespondent Akademii nauk SSSR.
(Ore dressing) (Mineral industries)



PLAKSIN, I.N.; KLASSEN, V.I.; BERGER, G.S.

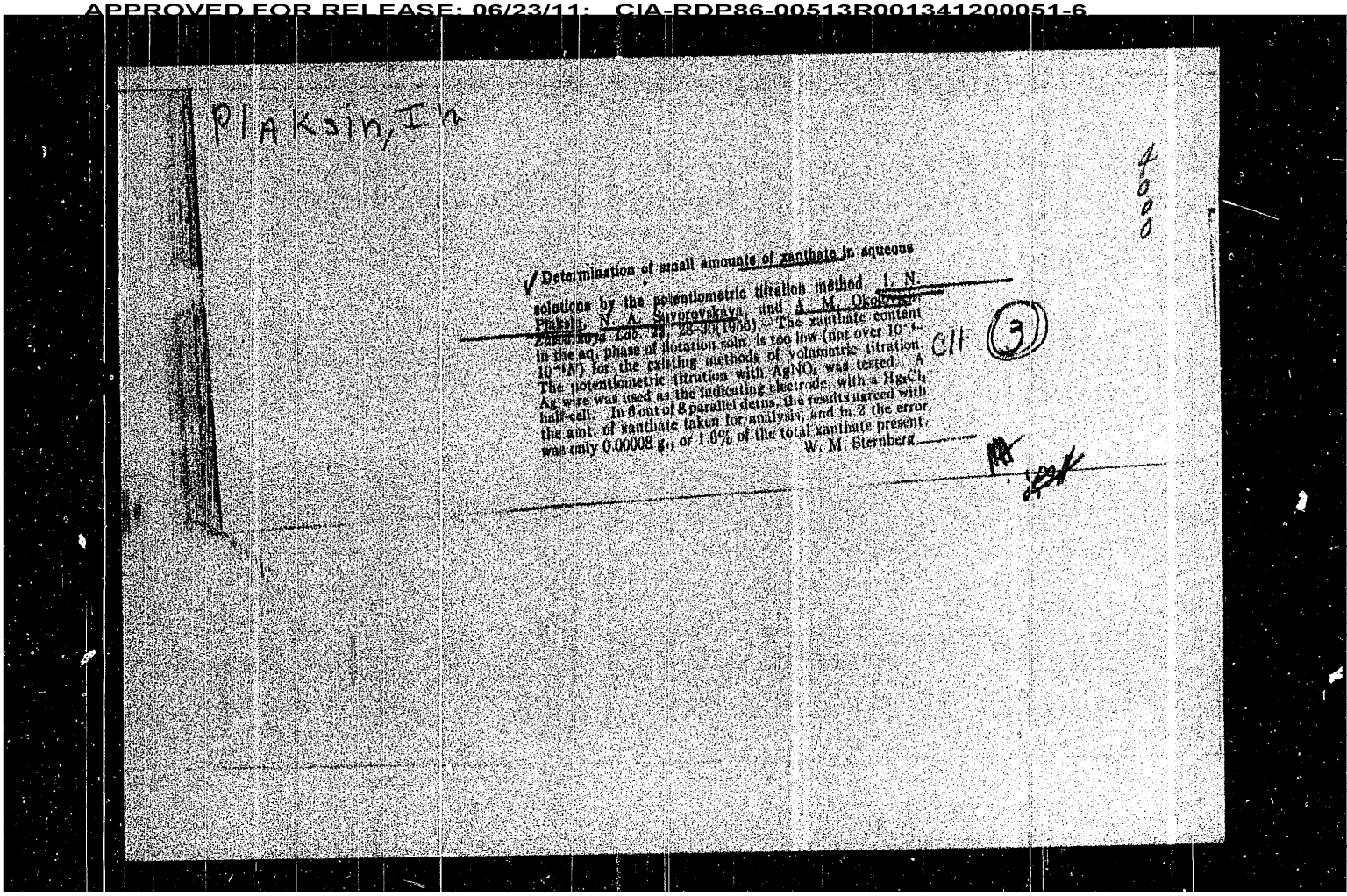
Kinetic equations for the flotation process. TSvet.met. 29 no.4: 20-24 Ap '56. (MLRA 9:8)

(Flotation)

PLAKSIN, I.N.

Study of ore dressing and hydrometallurgy of rare and radioactive metals. Vest.AN SSSR 26 no.7:57-60 Jl '56. (MLRA 9:9)

1.Chlen-korrespondent AN SSSR.
(Ore dressing)



Plaksin, I. N.

4000

Determination of small amounts of xanthate in aqueous solutions by the potentiometric titration method. I. N. Plaksin, N. A. Savorovskaya, and A. M. Okolovich. Zavodskaya Lab. 22, 25-30(1956).—The xanthate content in the aq. phase of flotation soln. is too low (not over 10^{-4}–10^{-5}M) for the existing methods of volumetric titration. The potentiometric titration with $AgNO_3$ was tested. A Ag wire was used as the indicating electrode, with a Hg_2Cl_2 half-cell. In 6 out of 8 parallel detns. the results agreed with the amt. of xanthate taken for analysis, and in 2 the error was only 0.00008 g., or 1.0% of the total xanthate present.
W. M. Sternberg

C11 (3)

PLAKSIN, I.N.

The influence of the surface oxidation of some bituminous coals upon their flotability. T. A. Goglidze and I. N. Plaksin. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* [illegible], No. 11, 77-81.—The coal flotability is slightly but [illegible] impaired by storage of coal in air, i.e. the ash content in the tailings drops after 6 months' storage from 61 to [illegible]%, and in 1 more year to 42-46%. Tests were run on coal flotation after artificial oxidation of the coal surface with O_2, air O under pressure, 30% H_2O_2 soln., and with $KMnO_4$ soln. (5% of the coal wt.). H_2O_2 lowers the ash content of the tailings by 9-10%. Alk. $KMnO_4$ can oxidize coal almost completely. Neutral $KMnO_4$ was found to affect the flotability by first reducing in 2 days the ash content to 28.6, then increasing it in 4 addnl. days to 61.3, and again reducing it in 6 more days to 54.3%. The flotability of fresh coal can be completely destroyed with $KMnO_4$. AcOH formation in the coal oxidation with $KMnO_4$ was proven experimentally. The flotability can be partially or completely restored by boiling coal with H_2O, by heating it in vacuum to 40-60°, and by chem. reduction of the coal surface (benzidine, anthracene) in 1% NaOH soln.

W. M. Sternberg

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001341200051-6

PLAKSIN, I.N. (Moskva); KHAZHINSKAYA, G.N. (Moskva)

Collector effect of certain frothers during the flotation of sphalerite. Izv.AN SSSR Otd.tekh.nauk no.9:121-123 S '56.
(Flotation) (MLRA 9:9)

PLAKSIN I. N.

USSR/Physical Chemistry. Surface Phenomena. Adsorption. B-14
Chromatography. Ion Exchange.

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22551.

Author : I. N. Plaksin, V. I. Tyurnikov.
Inst : Not given.
Title : Examination of Xanthogenate Fixation Stability on Chalcopyrite Grain Surface.

Orig Pub : Izv. AN USSR, Otd. Tekhn. N. 1956, No 8, 140-142.

Abstract : The stability of a series of xanthogenates (X) on chalcopyrite (I) grain surface is examined by method of radioactive isotopes. The determination of desorption of X was carried out by the way of washing off in a special mixer of an average sample of chalcopyrite concentrate obtained by flotation of the mixture of I and quartz X marked S^{35}, and of pine oil in a lime medium. It is shown that the fixation X stability, insignificant at small expenditures of X (25-50 g/t), grows with the increase of X expenditure till 300g, and falls again at further increase of X expenditure till 600 g/t. The comparison of desorption of different X from I surfaces showed that the desorption of ethyl X is much faster that that of the butyl and isoamyl X.

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PLAKSIN, I. N.

USSR/Physical Chemistry. Surface Phenomena. Adsorption. Chromatography. Ion Exchange. B-13

Abs Jour : Ref Zhur - Khimiya, No 7, 1957, 22550.

Author : S. P. Zaytseva, I. N. Plaksin.
Inst : Not given
Title : Study of Reagent-Collector Combinations Influence on Their Adsorption by Copper, Silver and Gold, Silver and Copper Alloy.

Orig Pub : Izv. AN. USSR, Otd. Tekhn. N. 1956, No 7, 117-121.

Abstract : By methods of marked atoms the influence of twin xanthogenate (X) combinations, with diverse lengths of a hydrocarbonic chain on their adsorption on the surface of Cu, Ag and triple alloy (70% Au- 20% Ag- 10% Cu) laminae is studied. It is shown that the combination of ethyl (I) and butyl (II) produces a small increase in the total density of layers on Cu and alloy surfaces; combination of I and isoamyl (III) provokes an important increase in density. So, for instance, in the ratio I:II = 3.5:1.5 the density of the layer on alloy's surface increases by 20% in comparison with I alone and by 48% - with III alone. In addition to the joint action, a consecutive action of twin X was also examined by way of immersion of metallic

Card 1/2

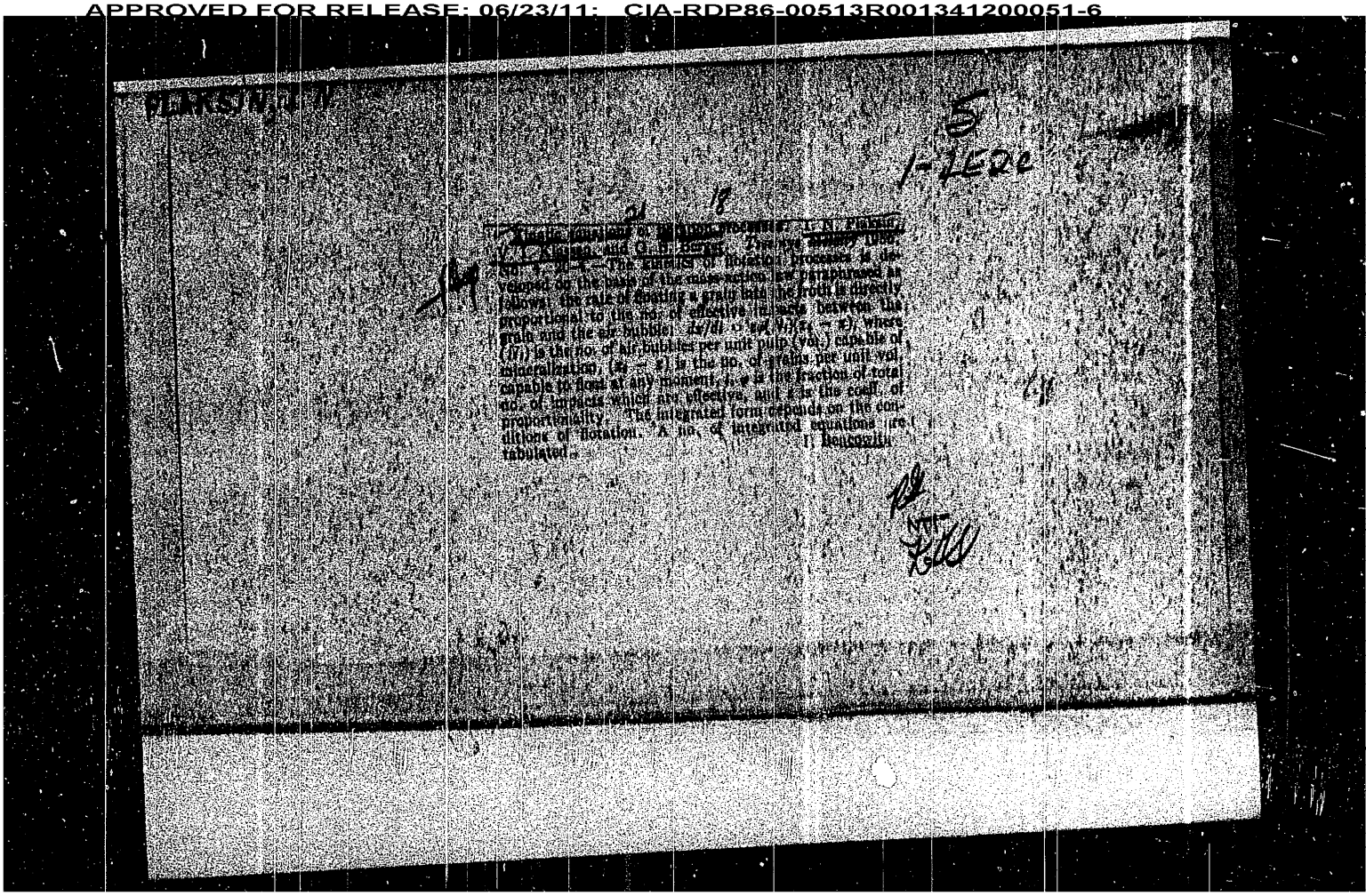
PLAKSIN, I. N. Prof. Dr.

"Das Schaffen von Georgius Agricola auf den Gebieten der Erzaufbereitung, des Hüttenwesens und der Probierkunst," Wissenschaftliche Annalen, No.6, pp 504-516, 1956

Plaksin, I. N.

The role of sodium sulfide on the xanthate interaction with the noble metal surface. S. P. Laptev and I. N. Plaksin. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1956, No. 6, 126-35.—The Na_2S adsorption upon the Ag, Au, and Pt surface was studied by the radioactive tracer technique, with some Na_2S^{35} addn. to ordinary Na_2S and in the presence of O. The activity of the Na_2S adsorption upon the metal surface decreases in the order Ag → Au → Pt, and the alloys of these metals occupy an intermediate position. In an O-free medium neither HS^- nor S^{--} ions interact with Ag or Au. The xanthate is adsorbed upon Ag and Au in the presence of a certain amt. of Na_2S. The xanthate adsorption upon the Au surface ceases in the presence of 12 millimoles Na_2S/l. but Ag demands a higher Na_2S concn. before xanthate ceases to be adsorbed upon the Ag surface, showing that a different amt. of Na_2S must be present for the collector action with different metals. The displacement of the xanthate ion from the surface is connected with a destruction of the xanthate ion bond with Ag. The multiple xanthate layer destruction on the surface by Na_2S is analogous to the xanthate destruction in soln. The destruction becomes more difficult as the layer becomes monomol. Washing the xanthate adsorption layer with water fails to remove it completely from the surface. W. M. Sternberg

Metal 2/ 1-Eng



PLAKSIN, I.N.; KLASSEN, V.I.; NESTEROV, I.M.; MILLER, E.V.

Water movement in a sinusoidal settling cycle; quality evaluation.
Trudy Inst.gor.dela 3:247-254 '56. (MLRA 9:8)
(Ore dressing)

PLAKSIN, I. N.

Application of very water-soluble foaming agents. I. N. Plaksin, A. M. Okolovich, E. I. Raukhvarger, and [illegible]. *Trudy Inst. Gornogo Dela, Akad. Nauk S.S.S.R.* 3, 39-48(1956).—The use of DS, a Na alkylaryl sulfonate (with av. mol. wt. 300-350, was proved suitable in the flotation of Pb-Zn, Cu-Zn, and Cu-pyrite ores. The Na salt had better frothing and collecting properties than NH_4, Ca, Mg, Fe, and Cu salts. It showed good action with galena, chalcopyrite, and sphalerite, much less so with pyrite, and none with quartz, unless activated with $CuSO_4$. The reagent was adversely affected by foreign ions, e.g., $S_2O_4^{--}$, SO_3^{--}, and Cl^-. The presence of pyrite decreased the recovery of other minerals. Weakly alk. conditions enhanced flotation of sulfide minerals. Up to 0.1% CaO had little effect, but above that it depressed the flotation of galena and pyrite. With DS as a collector and frothing agent in monomineral suspensions in weakly alk. medium, NaCN and $ZnSO_4$ depressed flotation of pyrite and, especially, of sphalerite, without affecting galena.
E. M. Ellin

Resistance of a Layer of Mineral Grains (cont.)

(size 0.2 - 0.1 cm) lead glance (0.16 - 0.1 and 0.0147 - 0.0104), and chalcopyrites (0.042 - 0.025), showed that formula (2) can be used for velocities $v_1 < 1$ cm sec - 1. An analysis of results obtained shows that the formulae cannot be used without giving them a further, more accurate definition in the case of a low degree of grain compactness. Bibliography: 6 references.

Ye. M. Minskiy

Card 3/3

Resistance of a Layer of Mineral Grains (cont.)

where x_o is the radius of a circle having an area equal to the cross section of the channel; dp/dz is the pressure gradient; μ is the viscosity; α is a coefficient depending upon the shape of the cross section which is equal to 0.125 for a round section, 0.14 for a square or triangular section, etc. On the average α is assumed to be 0.13. An average velocity through a layer containing a large amount of grains is computed. The pressure drop across the layer is determined by the equation:

$$\left|\frac{dp}{dz}\right| = \frac{189.4\,\mu\, v_1 (1-\theta)\theta^{\frac{1}{2}}}{(d_1^2 + d_1 d_2 + d_2^2)(1-\theta^{2/3})^4 g} \qquad (2)$$

where θ is the compactness of the layer and d_1 and d_2 are the dimensions of the largest grain and the smallest grain in cm. A formula for the computation of the velocity in poured and compacted particles (grains) was obtained. The formulas were tested by experiments. The experiments carried out with magnetite

Card 2/3

Plaksin, I.N.

124-1957-10-11793

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 10, p 87 (USSR)

AUTHORS: Plaksin, I. N., Klassen, V. I., Neeterov, I. M., Miller, E. V.

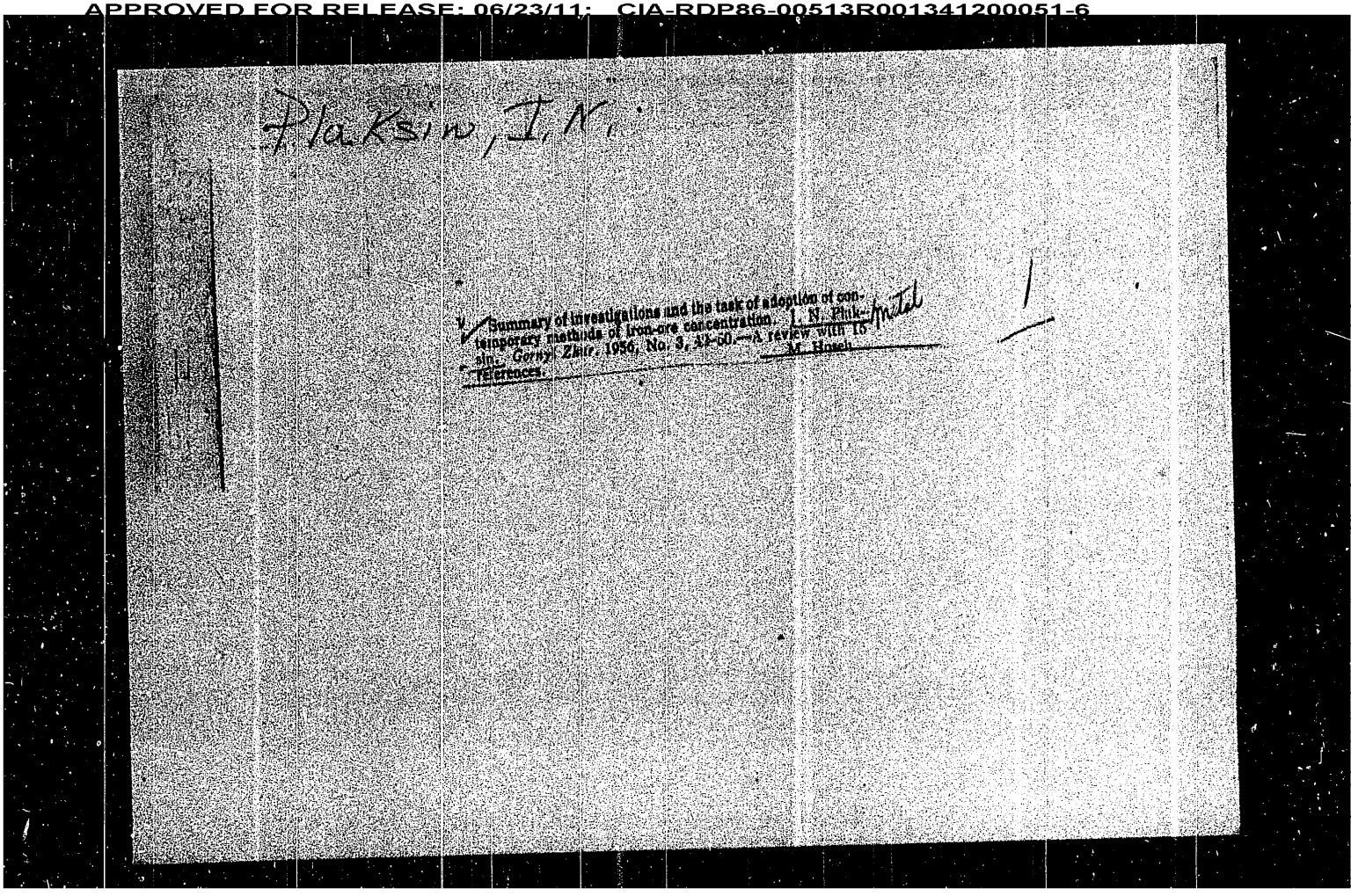
TITLE: Resistance of a Layer of Mineral Grains to a Liquid Stream Passing Through It (O soprotivlenii sloya mineral'nykh zeren prokhodyashchemu potoku zhidkosti)

PERIODICAL: Tr. In-ta gorn. dela AN SSSR, 1956, Vol 3, pp 213-238

ABSTRACT: To compute the resistance of a liquid flow through a layer of mineral grains, the Navier-Stokes equation for laminar flow through channels with varied cross sections is solved. Shapes of cross sections similar to those prevailing between adjacent grains are discussed. The flow equation is solved by a method of finite differences. For an average velocity v the following equation is given:

$$v = -\alpha \frac{x_0^2}{\mu} \frac{dp}{dz} \qquad (1)$$

Card 1/3



Plaksin, I. N.

Summary of investigations and the task of adoption of contemporary methods of iron-ore concentration. I. N. Plaksin. Izv. Gorn. Zhur., 1956, No. 9, 43-50.—A review with 15 references. M. Hosch

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 6 (USSR)

AUTHOR: Plaksin, I. N.

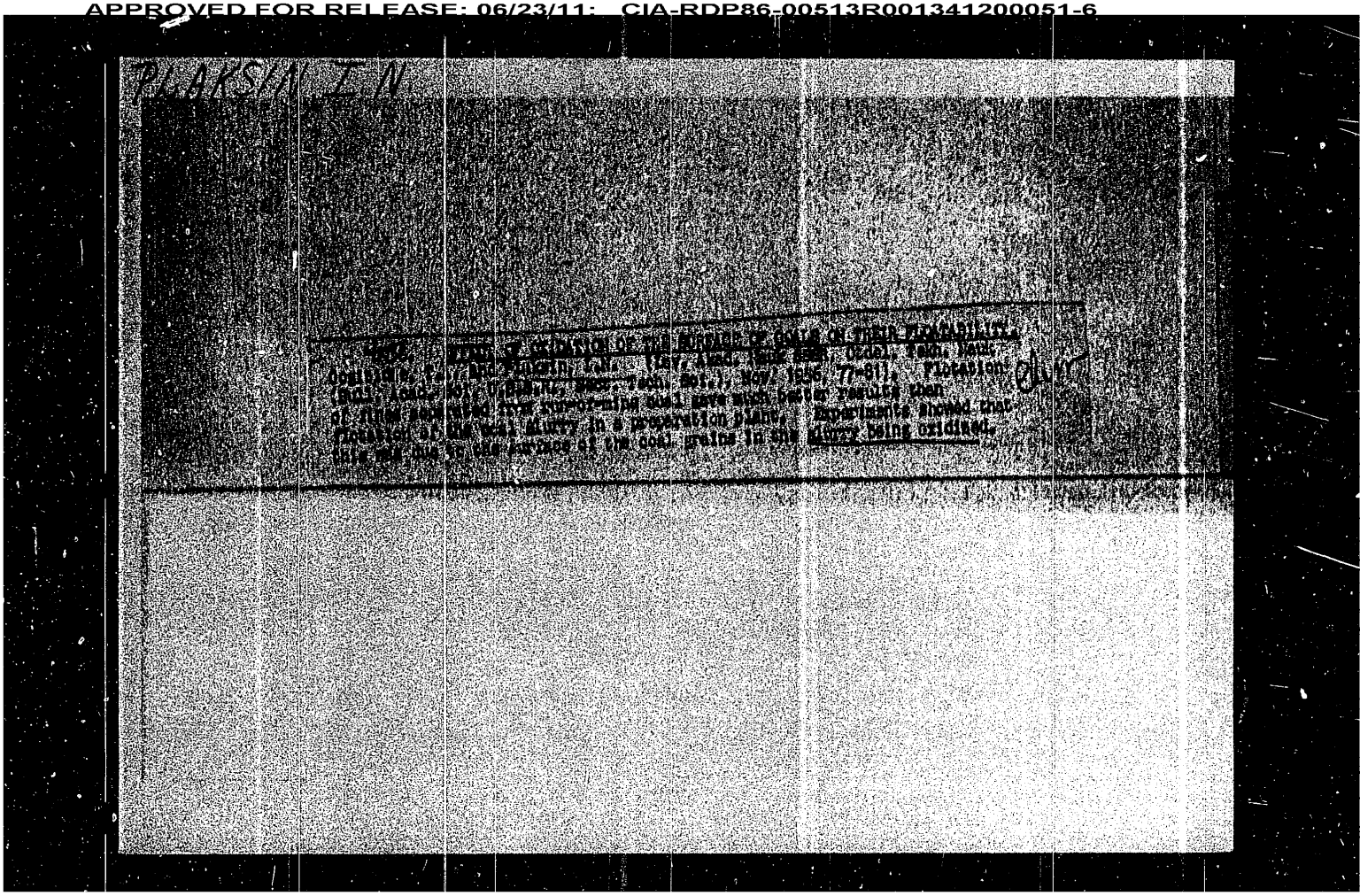
TITLE: Fundamental Milestones in the History of the Metallurgy of the Noble Metals (Osnovnyye etapy istorii metallurgii blagorodnykh metallov)

PERIODICAL: V sb.: Vopr. istorii yestestvozn. i tekhn. Nr 1. Moscow, AN SSSR, 1956, pp 179-191

ABSTRACT: Bibliographic entry

1. Metallurgy--Noble metals--History 2. Metallurgy--History --Bibliography

Card 1/1



PLAKSIN, I. N.

"Unber die Verwendung Radioaktiver Isotope zur Erforschung des Flotationsvoraanges."

paper presented at the 7th Mining and Metalworkers Day meeting, Bergakademie, [redacted] Freiburg, 23-26 May 1956.

Dr. Tech. Sci., Corr. Mbr. Acad. Sci. USSR

Plaksin, I. N.

KLASSEN, V.I.; PLAKSIN, I.N.

Influence of structure and composition of reagents on their effect in the flotation of coals. Dokl. AN SSSR 103 no.5:879-881 Ag '55. (MLRA 9:1)

1.Chlen-korrespondent AN SSSR (for Plaksin).2.Institut gornogo dela Akademii nauk SSSR.
(Coal) (Flotation) (Chemical tests and reagents)

PLAKSIN, I. N.

USSR/Minerals - Chemical technology

Card 1/1 Pub. 22 - 37/59

Authors : Plaksin, I. N., Memb.Corres.,Acad. of Sc., USSR; Bessonov, S. V.; and Tyurnikova, V. I.

Title : Reaction of xanthogenates with the surface of sulfide minerals

Periodical : Dok. AN SSSR 102/2, 331-333, May 11, 1955

Abstract : The results obtained during the flotation splitting of chalcopyrite and quartz in argon with the application of marked xanthogenates are described. The effect of oxygen and xanthogenates upon the surface of sulfide minerals is discussed. Two USSR references (1950-1954). Graphs.

Institution : Acad. of Sc., USSR, Inst. of Mining

Submitted : January 7, 1955

PLAKSIN, I. N.

USSR/Chemistry - Chemical technology

Card 1/1 Pub. 22 - 38/52

Authors : Plaksin, I. N., Memb. Corresp., Acad. of Sc., USSR; and Zaytseva, S. P.

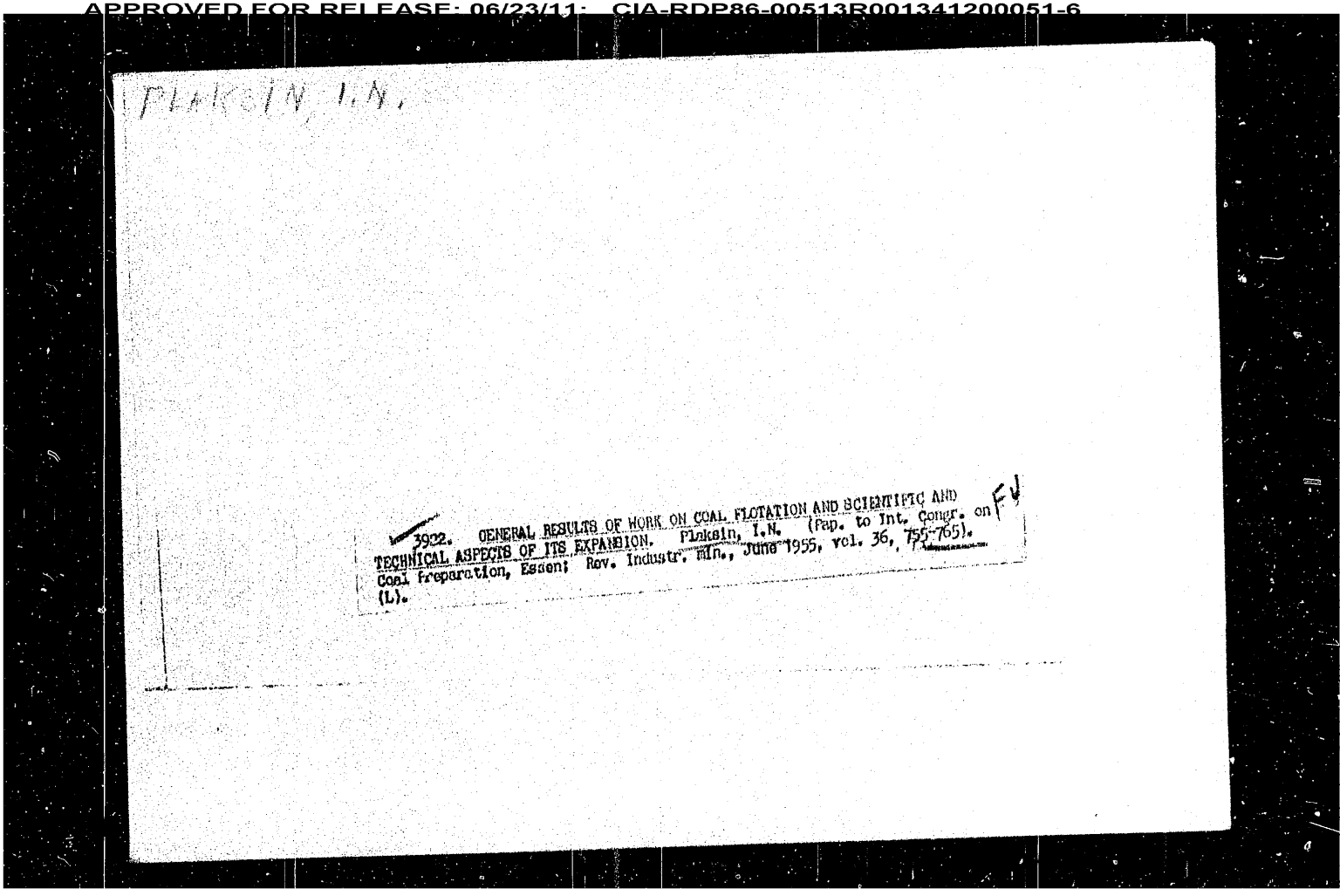
Title : Effect of O, N and H on the adsorption of ethyl xanthogenate with Au, Ag, Cu and their alloys

Periodical : Dok. AN SSSR 101/4, 727-730, Apr 1, 1955

Abstract : Using pure metals - Au, Ag, Cu and their alloys - the author endeavored to determine the effect of gases (O, N, H) on the adsorption of ethyl xanthogenate with these metals. The effects of various gas contents in the solution on the adsorbability of the metals was established. Nitrogen and molecular hydrogen produced no visible effect on the adsorbability of the metals even at ordinary room temperatures. Only oxygen was found to be an active factor affecting the adsorption of flotation reagents and made it possible to determine the necessary density of the adsorption layer at lower solution concentrations. Oxygen was also found to be an excellent means of controlling the flotation process. Six USSR references (1948-1955). Graph.

Institution : Acad. of Sc., USSR, Mining Institute

Submitted : November 4, 1954



PLAKSIN, I.N.

3922. GENERAL RESULTS OF WORK ON COAL FLOTATION AND SCIENTIFIC AND TECHNICAL ASPECTS OF ITS EXPANSION. Plaksin, I.N. (Pap. to Int. Congr. on Coal Preparation, Essen; Rev. Industr. Min., June 1955, vol. 36, 755-765). (L).

FV

PLAKSIN, I.N.; SUDOPLATOV, A.P., professor; PETROV, D.A., professor; SYSKOV, K.I., doktor tekhnicheskikh nauk.

Mining and metallurgy in the German Democratic Republic. Vest. AN SSSR 25 no.1:69-71 Ja '55. (MLRA 8:3)

1. Chlen-korrespondent Akademii nauk SSSR(for Plaksin)
(Germany, East--Mines and mineral resources)

PLAKSIN, I.N.

Congress on mining and metallurgy in France. Vest.AN SSSR 25 no.9:66-68 S'55. (MLRA 8:12)

1. Chlen-korrespondent Akademii nauk SSSR.
(France--Mineral industries--Congresses)

PLAKSIN, I.N.

18

Study by means of labeled atoms of the films forming on the surface of gold and silver in cyanidation with the solutions containing antimony. I. N. Plaksin and M. D. Ivanovskii. *Sbornik Nauch. Trudov Moskov. Inst. Tsvet. Metal. i Zolota* 1955, No. 25, 82-90; *Referat. Zhur., Met.* 1956, No. 3868.—The solubilities of Au, Ag, and a Au-Ag (80:20) alloy in cyanide solns. contg. Sb were studied with the help of Sb^{124}. Also the conditions and kinetics of Sb-film formation upon the surface of dissolving metals were studied. The soln. contained 0.13% NaCN, 0.04% NaOH, and 1-100 mg./l. of Sb. With the increase of Sb concn. from 1 to 100 mg./l. the amount of Sb settling upon the Au in 3 hrs. increased from 9.38 $\times 10^{-4}$ to 2.82 $\times 10^{-4}$ mg./sq. cm., upon the Au-Ag alloy from 8.25 $\times 10^{-4}$ to 1.6 $\times 10^{-2}$ mg./sq. cm., and upon Ag from 7.2 $\times 10^{-4}$ to 9.5 $\times 10^{-2}$ mg./sq. cm. Most probably Sb_2S_3 was settling on Au, and a mixt. of Ag_2S with Sb_2S_3 on the alloy and on Ag. Increase of concn. of Sb in soln. up to 50-100 mg./l. decreases the velocity of Au soln. to 8.88% and the amount of pptd. Sb increases. The soln. of the Au-Ag alloy and of Ag decreased in even larger degree. Increase in concn. of NaCN in the soln. from 0.04 to 0.8% (NaOH 0.04%) increased the velocity of soln. of Au and also the amount of pptd. Sb; for the Au-Ag alloy and also for pure Ag the soln. increased, but the amount of pptd. Sb decreased. The increase of concn. of NaOH in soln. from 0.04 to 0.8% (NaCN 0.13%, Sb 50 mg./l.) decreased the amount of Sb pptd. on Au and on Au-Ag alloy. At NaOH concn. of 0.1% the velocity of soln. of the metals also decreased. Addn. of H_2O_2 to the soln. or oxygenation of the soln. increases the velocity of soln. of the metals.

Alexis N. Pestoff

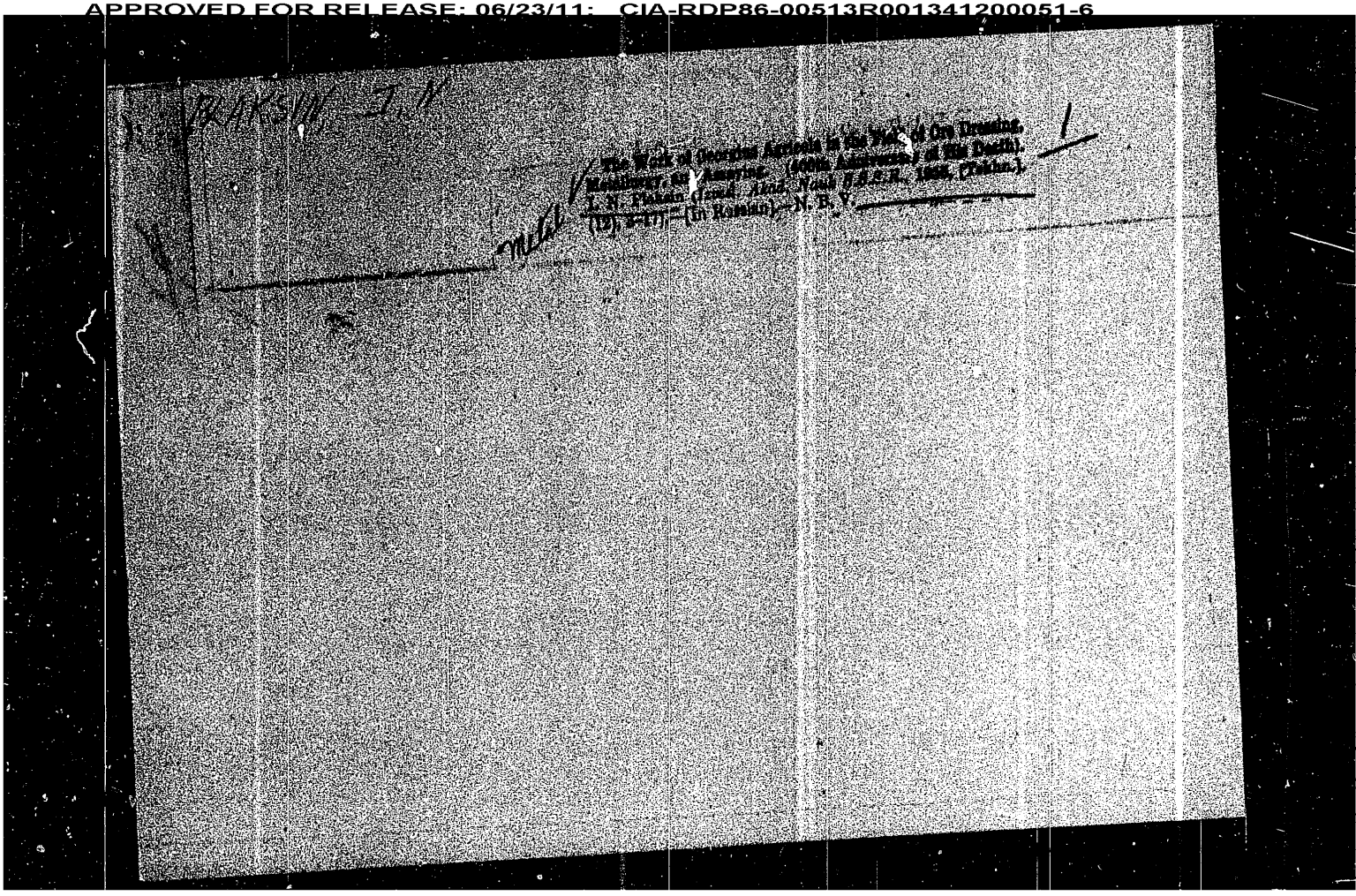
9

1-4E2C

PLAKSIN, I.N.

Tagged atoms. Tekh.mol.23 no.10:28-30 O '55. (MLRA 9:4)

1.Chlen-korrespondent AN SSSR.
(Radioactive tracers--Industrial application)(Ore dressing)



PLAKSIN I.N.

3891 Evaluation of Results of Work on the Flotation of Coals and the Prospects for Its Scientific and Engineering Development. **Obshchie itogi rabot po flotatsii uglei i perspektivy ee nauchnogo i tekhnicheskogo razvitiia.** (Russian.) V. I. Klassen and I. N. Plaksin. *Izvestiia akademii nauk SSSR. otdelenie tekhnicheskikh nauk,* 1955, no. 11, Nov., p. 101-108.

Economic problems in decalcifying and desulfurizing coals. Flotation machines and reagents. Automatic regulation of flotation process. 7 ref.

2

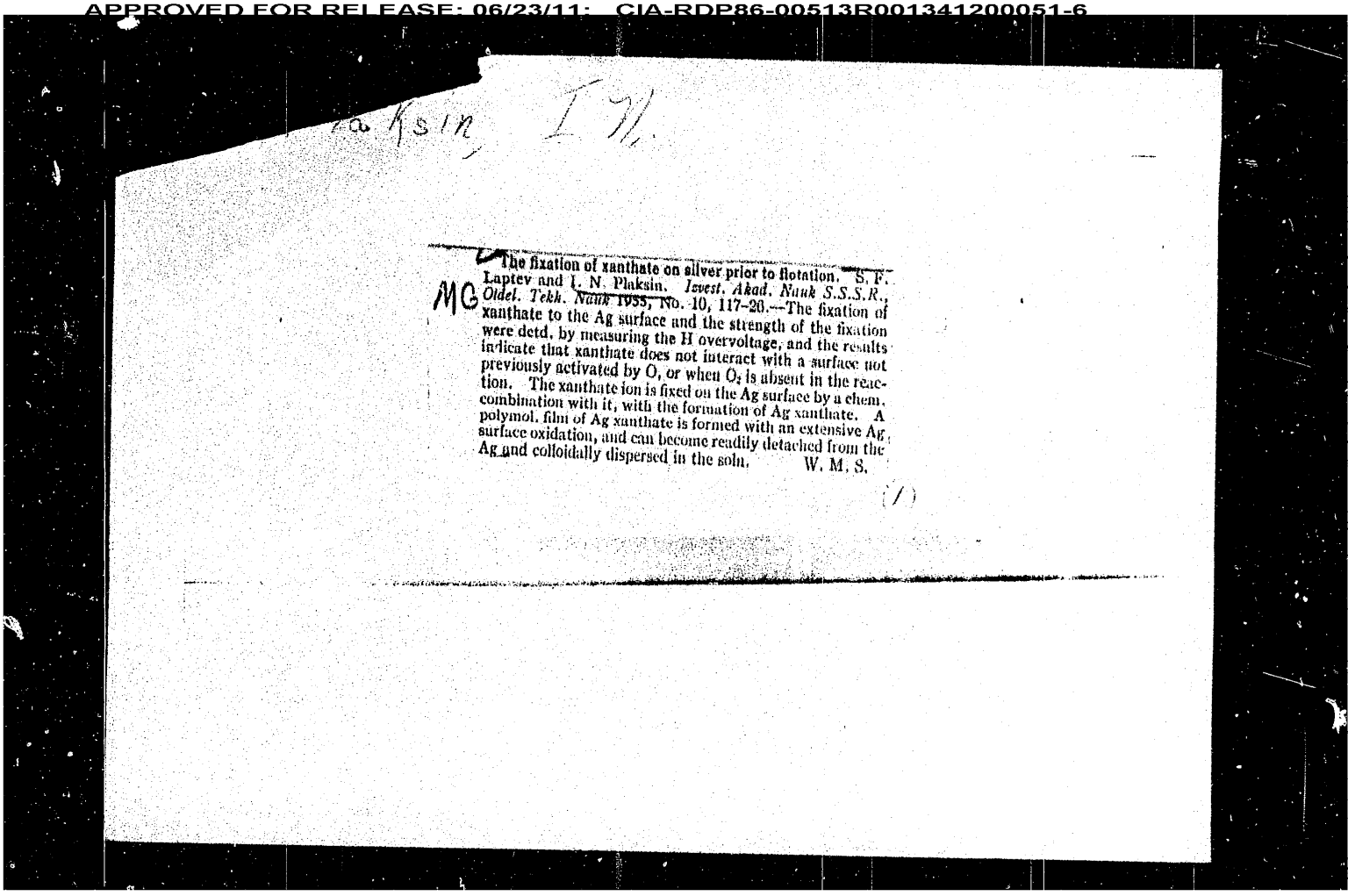
Fuel

Plaksin, I.N.

CA

The effects of various gases on the flotability of chalcopyrite. S. V. Bessonov, I. N. Plaksin, and V. I. Tyurnikova. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* **1955**, No. 10, 127-30; cf. *C.A.* **50**, 739a.—The effects of A, H, and CO_2 on chalcopyrite flotation were studied with tagged xanthate. With A, the extn. depends entirely on the O_2 concn. in the soln. H is not itself active in the flotation, but it interacts with O, and the extn. may be affected adversely if insufficient O is present. CO_2 is effective chiefly by lowering the pH. The acidity of the soln. favors the activation of the mineral surface, and the yield is high even when practically no O is present. O nevertheless plays an important role in flotation even in the presence of CO_2. The effects of the 3 gases are similar with other sulfide minerals, and the results confirm the predominating and substantial role of O_2 in the xanthate extn. of sulfide minerals. W. M. S.

(2)



Plaksin I. N.

MG

The fixation of xanthate on silver prior to flotation. S. F. Laptev and I. N. Plaksin. *Izvest. Akad. Nauk S.S.S.R., Otdel. Tekh. Nauk* 1955, No. 10, 117–26.—The fixation of xanthate to the Ag surface and the strength of the fixation were detd. by measuring the H overvoltage, and the results indicate that xanthate does not interact with a surface not previously activated by O_2 or when O_2 is absent in the reaction. The xanthate ion is fixed on the Ag surface by a chem. combination with it, with the formation of Ag xanthate. A polymol. film of Ag xanthate is formed with an extensive Ag surface oxidation, and can become readily detached from the Ag and colloidally dispersed in the soln. W. M. S.

(1)